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NEW YORK OFFICE  
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NEW YORK, N. Y. 10017*P. Lorillard Company*  
INCORPORATED

CIGARETTES - TOBACCO

RESEARCH DIVISION

*2525 East Market Street, Greensboro, N.C. 27402*

August 15, 1966

Mr. J. E. Bennett  
President  
P. Lorillard Company, Inc.  
200 East 42nd Street  
New York, N. Y. 10017

Dear Mr. Bennett:

Recently, the writer reviewed a copy of a letter to Mr. Yellen from Senator Clements, as well as enclosures, which represent a response to the Federal Trade Commission by the Senator on behalf of the American Tobacco Company, Brown & Williamson Tobacco Corporation, Liggett & Myers Tobacco Company, Philip Morris, Incorporated, and R. J. Reynolds Tobacco Company.

Some of the recommendations set forth in the response on cigarette testing procedures are open to serious question, and we would be on a firm basis to comment as follows:

On the first page of the recommended procedures, it is stated that the recommendations were prepared with the aim of obtaining results which are reliable to plus or minus 5% of the reported value at the 95% confidence level. Further, it is recommended that "tar" be reported on a moisture-free basis. The rationale used in arriving at the number of cigarettes to be smoked in order to meet the aim set forth is erroneous for several reasons:

1. The data used to make the computation on the number of cigarettes are derived from information presented in the Ogg paper. These data are based upon TPM Wet, and may not validly be used to discuss expected variations in TPM Dry.

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2. The Ogg method employs the sampling procedure in which cigarettes are weighed. Since recommendations do not include a similar sampling procedure, the Ogg statistics may not validly be used to predict the expected variation in TPM by the recommended procedure.
3. The standard deviation used in the student's "T" test, on page 4 of the recommendations, was obtained from the uncorrected, between laboratory, variation reported by Ogg. The average, within laboratory, standard deviation should have been used, or at least the deviation obtained after several collaborating laboratories were excluded. If laboratories do not obtain the same results, no amount of testing will reduce the variation between these laboratories.
4. The maximum error used in the "T" test should have been 5% of 32.3 mg., or 1.6 mg., not 1 mg. The 5% was previously stated as a part of the aim of the recommendations.

Based upon our experiences in determining TPM Dry, as well as revised calculations using the student's "T" test, we estimate that the maximum error of 5% can usually be obtained at the 95% confidence level after smoking 40 - 50 cigarettes, selected by the Ogg procedure, and following the Schultz and Spears procedure for determining moisture. This estimate does not hold for all brands, in that inherent variations in the products under test influence the overall precision. Also, the above precision does not involve lab. to lab. variation where obvious bias exists, as in the case of collaborators 1, 8, 22 and 23 of the Ogg report. If laboratories are not in agreement, the source of bias must be found and eliminated before similar results can be obtained.

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The procedure under the subheading, "Alkaloids," is in error. In using the Schultz and Spears procedure for moisture, the total solution volume is not precisely known. Therefore, all of the remaining solution and filter pad should be taken for the determination of nicotine.

We also disagree with the recommended number of cigarettes to be smoked onto one filter pad. Although we did not previously recognize this deficiency of the Ogg procedure, we are now prepared to demonstrate that when five cigarettes are smoked onto one pad a low result is obtained in the case of high tar cigarettes. A revision of the number of cigarettes smoked onto one pad to four circumvents this difficulty, and accurate results may be obtained.

The balance of the recommendations made by Senator Clements are not technically in error. However, we do not concur with the logic used in arriving at some of them. The purpose of such testing is to provide information on the amount of tar and nicotine derived by the average smoker. Therefore, the butt length should be defined in terms of the average smoker. Forty-seven millimeters is ridiculously long, and some of the older statistics indicate that 30 mm. is too long. We believe that the butt length left by the average smoker is nearer 25 mm., if unrestricted by the length of the tipping paper. As before, we recommend that butt length be defined as 25 mm. or the average length of the tipping paper, plus 3 mm., whichever is the greater.

We are of the opinion that results should be reported only on a per cigarette basis. The reporting of data on a per puff basis will only confuse the layman, and has a poor scientific basis. There is no evidence that cigarette smoke produces a detrimental, acute effect on the smoker, and, therefore, the concentration of smoke per puff is a poor measure of effects which, if they exist, can only be chronic in nature. Lastly, if both tar and nicotine are to be reported, we feel that the nicotine should be sub-

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tracted from the reported tar value, since the nicotine would be reported both as tar and nicotine if the subtraction is not made. Two mutually exclusive values would seem to be more meaningful.

Very truly yours,

*A. W. Spears*

A. W. Spears  
Director, Basic Research

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